

REMARKS/ARGUMENTS

Claims 1-22 and 25-42 are pending in the application. Claims 16-22 and 40-42 have been withdrawn by the Examiner from further consideration in this application as being directed to a non-elected invention. Thus, claims 1-15 and 25-39 are under examination and these claims have all been rejected.

A minor amendment is made herein to claim 1. The amendment is supported by the application as filed and thus it raises no question of new matter. Entry of the claim amendment into the file of the application is respectfully solicited. Upon such entry, claims 1-22 and 25-42, as amended, will be pending in the application.

Claim Rejections Under 35 U.S.C. §112

Claims 1-15 and 25-39 are rejected under 35 U.S.C. §112, second paragraph for the reasons presented on p. 2 of the Action.

The Office Action states that there is insufficient antecedent basis for the limitation, “the h_{50} value” in line 5 of claim 1. In response, claim 1 is amended herein to recite, “ $\pm h_{50}$ value”.

The Office Action further states that, “part ‘b’ of claim 1 is not clear especially the section of ‘and the h_{50} value as determined from the cumulative breakthrough curve of a scanning electron microscope thickness count.’”. In response, applicants respectfully submit that, in their view the language is perfectly clear, and would be readily understood by one having at least an ordinary level of skill in the relevant field of art. That is, a cumulative breakthrough curve as shown in Figures 1a and 1b is a standard curve summing up the number of particles having a certain size. This can be compared with a sieve having a certain mesh size and wherein all particles which are below the mesh size will go through (breakthrough) the sieve. The term is a commonly used standard technical term, which thus ought to be taken as being entirely clear to those working in this field, regarding the determination of the distribution of a size parameter such as thickness.

Furthermore, the Office Action states that there is no unit for the roughness value recited in part “c” of claim 1. The subject roughness value is given as “0.030 to 0.9”. In this regard the Examiner’s attention is respectfully directed to the last paragraph on p. 9 of the present application (i.e., paragraph [0055] of the published U.S. application no. 2007/0199478 published

on August 30, 2007) which states that the roughness value “R” is dimensionless (“the dimensionless roughness value R”). Thus the roughness value has no unit and there is nothing missing from part “e” of applicants’ claim 1.

Based on the claim amendment to claim 1 taken in conjunction with the remarks provided above, the Examiner is respectfully requested to reconsider and withdraw the rejection of claim 1, as well as that of claims 2-15 and 25-39 depending from claim 1, under 35 U.S.C. §112.

Claim Rejections Under 35 U.S.C. §103

At p. 3 of the Action claims 1-9, 14-15, 26-30, 35-36 and 38-39 are rejected under 35 U.S.C. 103 as being allegedly unpatentable over JP 2003-082258 (i.e., corresponding to EP 1621586) of Katsuhiro et al. (“Katsuhiro”) for the reasons presented at pp. 3-5. The rejection is respectfully traversed.

The Office Action indicates that the process used for forming the pigment in Katsuhiro is similar to that disclosed by applicants in forming the presently claimed pigments, and that the water coverage and the roughness of pigments obtained according to the disclosure contained in the subject reference should thus be comparable to that of the pigments according to the claims of the present application. Applicants respectfully disagree with the above conclusions for the reasons presented below.

As taught, for example, at p. 7, lines 17-22 (i.e., in published paragraph [0041]) of the present application. The aluminum pigments as presently claimed are surprisingly similar in their optical properties to PVD pigments. The reasons why applicants’ pigments possess these superior optical properties are as set forth in the indicated paragraph, as follows: “The aluminum pigments of the invention are surprisingly very thin and at the same time have a narrow distribution of thicknesses. The aluminum pigments of the invention are substantially similar in their optical properties to the PVD pigments, . . . “. (emphasis supplied).

The narrow distribution of thicknesses, which is an important factor in obtaining the superior optical properties in the case of applicants’ pigments, is related to the coverage afforded by the pigments as explained in the following paragraph (p. 7, lines 24-26) of applicants’ specification, as follows:

The exact mean thickness of lamellar metal pigments can be determined only with great difficulty. DIN 55923 specifies a procedure for the measurement of the water coverage (spreading) of “leafing” pigments.

Based on the disclosure quoted above from applicants’ specification, it is clear that the “water coverage” feature is not an arbitrary value, but rather it represents an essential feature which has significant influence on the optical properties of applicants’ pigments.

The Katsuhiko reference, however, is entirely silent with respect to the distribution of the thickness or of the water coverage of the pigments. One of at least ordinary skill in this field of art does not obtain from the Katsuhiko reference any hint that, specifically, a narrow distribution of thickness might be an important feature and/or serve an important purpose. This aspect, alone, thus demonstrates that the subject matter as presently claimed should not be considered obvious over the disclosure contained in Katsuhiko.

Further to the above, the pigments as presently claimed have a roughness value within a certain range, as specified in claim 1, sub-paragraph “e”. The roughness of the pigments according to the present application is also correlated with the narrow distribution of thickness. This is immediately evident from the formula set forth in claim 1, as well as in paragraph [0055] of the published application, wherein the value of the water coverage (which is associated with the thickness of the pigments) is in the denominator of the formula. This demonstrates that the distribution of the thickness is a very decisive feature as regards the pigments as presently claimed, whereas the Katsuhiko reference is completely silent with regard to this feature.

For all of the reasons presented above, therefore, applicants respectfully submit that claim 1, as well as claims 2-9, 14-15, 26-30, 35-36 and 38-39 depending therefrom, clearly define an Inventive Step and thus, are not obvious, over the Katsuhiko reference. The Examiner is thus respectfully requested to reconsider and withdraw the subject rejection under 35 U.S.C. 103.

Further to the above, at p. 5 claims 10-11 and 37 are rejected under 35 U.S.C. 103 over Katsuhiko as applied in the rejection discussed above, and further in view of USP No. 5,474,605 to Schmidt et al. (“Schmidt”). The rejection is respectfully traversed.

Claim 10 is directed to the aluminum pigment of claim 1, wherein the pigment is coated with a passivating inhibitor or an anti-corrosion layer. Claim 11 depends from claim 10 and further defines the passivating inhibitor layer. Claim 37 refers back to claim 13 which, in turn,

depends (indirectly) back upon claim 1, wherein the silicon dioxide surface of the pigment is coated with silanes. All of the rejected claims depend ultimately upon claim 1 and thus these claims include all of the features recited in the subject independent claim.

Claim 1 (and the other rejected claims listed on p. 3) are believed to be distinguishable over Katsuhiko for the reasons presented above, which are expressly incorporated by reference into this discussion. According to the Office Action, the Schmid reference is cited due to its teaching that phosphorous compounds are known to impart passivation and prevent corrosion and also that silicon compounds such as silanes of formula I as set forth in the reference are used in coating aluminum flakes to prevent them from corrosion. Notwithstanding the teaching of Schmid with regard to these features, however, applicants respectfully submit that the subject reference does not remedy the deficiencies of Katsuhiko as discussed above wherein the 'primary' reference evinces no recognition of the importance of a narrow thickness distribution insofar as the effect of this parameter on the optical properties of the resultant pigments. In sum, therefore, even granting that the secondary reference of Schmidt does indeed disclose what is attributed to it at p. 6 of the Office Action, neither the reference by itself, or in combination with Katsuhiko recognizes the importance of maintaining a narrow thickness distribution insofar as this produces an important effect on the optical properties of the resultant pigments.

Thus, for the reasons presented above, claims 10-11 and 37 also are deemed by the applicants to exhibit an Inventive Step (i.e., they are not obvious) over the combined disclosures of Katsuhiko and Schmid.

Further to the above, on p. 7 of the Office Action claims 12-13 are rejected under 35 U.S.C. §103 over Katsuhiko as applied to claim 1 and further in view of Schmid et al. and Published U.S. Patent Application No. 2002/0169244 to Ostertag et al. The rejection is respectfully traversed.

Claims 12 and 13 depend (indirectly) from claim 1 and further define a passivating anti-corrosion layer that may be coated onto the pigment according to claim 1. According to the Office Action, Ostertag et al. is cited as disclosing that in the case of metallic pigments, one may form a passivating anti-corrosive layer onto the pigment using silicon oxide, zirconium oxide, aluminum oxide/hydroxide, phosphate, chromium oxide, borate or mixtures thereof. Even granting that the reference does contain the disclosure described in the Office Action, applicants

respectfully submit that, as noted above, the subject reference does not remedy the deficiencies of Katsuhiro as discussed above wherein the 'primary' reference evinces no recognition of the importance of a narrow thickness distribution insofar as the effect of this parameter on the optical properties of the resultant pigments. In sum, therefore, even granting that the secondary Schmid and Ostertag references indeed disclose what is attributed to them by the Office Action, neither Schmid or Ostertag by themselves or in combination, or even in combination with Katsuhiro, recognize the importance of maintaining a narrow thickness distribution insofar as this produces an important effect on the optical properties of the resultant pigments.

For the reasons above, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection under §103 of applicants' claims 12-13.

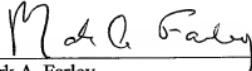
Still further, at p. 8 of the Action claim 25 and 31-34 are rejected under 35 U.S.C. §103 over Katsuhiro as applied to claim 1 and further in view of USP No. 3,776,473 to Casey et al. The rejection is respectfully traversed.

Claim 25 is directed to a nail varnish containing the pigment according to claim 1. Claims 31-34 are directed to, respectively a plastic composition, a security printing ink, a ceramic composition and a cosmetic formulation, each comprising the aluminum pigment according to claim 1. Due to their dependence upon claim 1, each of the subject claims includes all of the features recited in the subject independent claim. The secondary Casey et al. reference is cited, according to the discussion at p. 8 of the Office Action, since it is drawn to aluminum flake pigments produced by wet ball milling aluminum powder in the presence of a lubricant and that it further discloses that aluminum pigments have many utilities such as in cosmetics, security printing inks, plastics, ceramics, nail polishes, etc. However, applicants respectfully submit that the Casey et al. reference does not remedy the deficiencies of Katsuhiro as discussed above wherein the 'primary' reference evinces no recognition of the importance of a narrow thickness distribution insofar as the effect of this parameter on the optical properties of the resultant pigments.

In light of the situation as described above, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection under 35 USC §103 of claims 25 and 31-34.

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Respectfully submitted,



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